**Please show work!**

1. A bottling company needs to produce bottles that will hold 8 ounces of liquid for a local brewery. Periodically, the company gets complaints that their bottles are not holding enough liquid. To test this claim, the bottling company randomly samples 64 bottles and finds the average amount of liquid held by the 64 bottles is 7.9145 ounces with a standard deviation of 0.40 ounce. Suppose the p-value of this test turned out to be 0.0436. State the proper conclusion.

a). at α=0.035, accept the null hypothesis

b). at α=0.05, reject the null hypothesis

c). at α=0.085, fail to reject the null hypothesis

d). at α-0.025, reject the null hypothesis

2. The weight of items produced by a machine is normally distributed with a mean of 8 ounces and a standard deviation of 2 ounces. What percentage of items will weigh 11.7 ounces.

a). 46.78%

b). 96.78%

c). 3.22%

d). 53.22

3. For a standard normal distribution, the probability of obtaining a z value between -2.4 to -2.0 is a. 0.4000

b. 0.0146

c. 0.400

d. 0.5000

**True or False**

1. If A and B are independent events, then A and B are mutually exclusive also.
2. One drawback of pie charts, dot plots, stem-and-leaf displays and histograms is that no measure of reliability can be attached to a graph.
3. The binomial distribution can be used to model the number of rare events that occur over a given time period.